

Remarks

The above Amendments and these Remarks are in reply to the Office action mailed March 19, 2003. Claims 1-5, 7-22, 36-40 and 45-49 are presented herewith for consideration.

Objection to the Specification

The Abstract has been amended in light of the Examiner's comments regarding the specification. Reconsideration in light of this amendment is therefore requested.

Election

The provisional election made by telephone on February 20, 2003 to prosecute claims 1 – 22, 26 – 40 and 45 – 49 is hereby confirmed.

Objection to the Drawings

The objection to the drawings is respectfully traversed. The Examiner states that "Fig. 1, 2, 3 contain unlabeled boxes, which do not specify the operation of the boxes." (Office Action, Page 5). The only "boxes" shown in Figs. 1 – 3 are labeled with reference numerals 11, (Fig. 1), 21 and 30 (Figs. 2 and 3), which are explained in the written description as "sense-pulse generator 11" and "sense-pulse generator 21" and "a demodulator 30."

The Examiner has not cited, nor is the undersigned attorney aware of, any provision in the statute or rules requiring a functional label on elements in a drawing. If the elements listed above are not those referred to by the Examiner, additional explanation of the elements in Figs. 1 – 3 which are not labeled is requested.

Rejections Under 35 USC Section 102(b)

It is respectfully submitted that, Shibano fails to disclose:

"a sense pulse generator having an output, said output having a first polarity sense pulse during a first phase and a second polarity sense pulse during a second phase"
(emphasis supplied)

Shibano illustrates a sense pulse generator having an output that is either V_b or 0, but which does not change polarity; each output of Shibano's sense pulse generator always maintains the same polarity sense pulse.

In particular, Shibano illustrates a sense pulse generator (Fig. 1, element 7), that has two outputs V_{sa1} and V_{sa2} .

- During the first half of sensing period T_m , from t_0 to t_1 , ϕ_2 is high, ϕ_4 is low, ϕ_3 is high, and ϕ_5 is low. Thus, V_{sa1} is V_B and V_{sa2} is 0 (Col 6 lines 57-67, Col 7 lines 1-5).
- During the second half of the sensing period T_m , from t_1 to t_2 , ϕ_2 is low, ϕ_4 is high, ϕ_3 is low, and ϕ_5 is high. Thus, V_{sa1} is 0 and V_{sa2} is V_b (Col 7 lines 20-35).

Hence, V_{sa1} (output 1) undergoes a negative sense pulse of value $-V_B$, and V_{sa2} (output 2) undergoes a positive sense pulse of $+V_B$.

The time period between t_2 and t_3 is the feedback phase during which no sense pulses are applied (Col 6 lines 38-56, Col. 8 lines 18- 67, Col. 9 lines 1-4).

During subsequent cycles (Col. 6 lines 38-56, Figure 2), output V_{sa1} (output 1) again undergoes a negative sense pulse of value $-V_B$, and V_{sa2} (output 2) again undergoes a positive sense pulse of $+V_B$.

Thus, Shibano does not show "a sense pulse generator having an output, said output having a first polarity sense pulse during a first phase and a second polarity sense pulse during a second phase," as each output of Shibano's sense pulse generator always maintains the same polarity sense pulse.

Hence, it is respectfully submitted that claim 1 is not anticipated by Shibano.

It is further submitted that claim 36 is not anticipated by Shibano. In particular, claim 36 requires:

a sense pulse generator coupled to said sense capacitor and having an output, said sense pulse generator comprising control circuitry, *said control circuitry causing the sense pulse polarity at the output to invert over two phases;* (emphasis added)

As noted above, Shibano teaches each output having the same polarity sense pulse over different phases. Hence, claim 36 is not anticipated by Shibano.

It is further submitted that claim 45 is not anticipated by Shibano. In particular, claim 45 requires:

providing *a plurality of sense pulses from the output* of a sense pulse generator *having a first polarity* to a sense capacitor during a first phase to obtain a first output of the sense transducer; and

providing *a plurality of sense pulses from the output* of a sense pulse generator *having a second polarity* to a sense capacitor during a second phase to obtain a second output of the sense transducer.

Again, the output provides "a first" and "a second" polarity of sense pulses. In Shibano, each output provides only a first plurality of sense pulses. Hence, claim 45 is not anticipated by Shibano.

It is further submitted that claims 2-3, 5,6,14,19,20-22,36 – 39 and 45 – 47 are likewise not anticipated by Shibano. Each of claims 2-3, 5,6,14,19,20-22,36 – 39 and 45 – 47 are dependent from claims 1, 36 or 45 and include all the limitations thereof.

Rejections Based on 35 U.S.C. Section 103

It is respectfully submitted that claim 49 is not obvious in view of Shibano, when coupled with Ryan et al. (U.S. Patent No. 6,188,294).

The Examiner asserts that Shibano discloses “a switch having a first input coupled with a low pass filter... Shibano does not disclose a demodulation circuit coupled to the storage device or an analog to digital converter coupled to the storage device and the demodulator.”

However, Shibano fails to disclose:

a sense pulse generator having an output, the output providing a first magnitude sense pulse of a first polarity and a second magnitude sense pulse of a second polarity;

As explained above, the sense pulses in Shibano are all of the same polarity. Hence, the teachings of Shibano alone or coupled with Ryan et al. are not sufficient to lead one of average skill in the art to make and use the claimed invention, even were the teachings of the references combined in the manner suggested by the Examiner.

Hence, it is respectfully submitted that claim 49 is not obvious in view of Shibano.

It is further submitted that claims 4, 7 – 18, and 40 are not obvious in view of Shibano, when coupled with Ryan et al. (U.S. Patent No. 6,188,294) (as to claim 4), Mockpetris et al. (U.S. Patent No 5,606,515 as to claims 7, 8, 10-13, 17, 18 and 40), or Mockpetris et al. further in view of Sherman et al. (U.S. Patent No. 5,345,8240) (as applied to claim 9), or Sherman et al. alone (as applied to claims 15 and 16).

Claims 4, 7 – 18 are dependent upon claim 1 and claim 40 is dependent upon claim 36, as noted above, Shibano does not disclose all the limitations of claims 1 or 40, and hence even if combined with Ryan et al., Mockpetris et al. or Sherman et al., the teachings are not sufficient to lead

one of average skill in the art to make and use the claimed invention.

Based on the above amendments and these remarks, reconsideration of Claims 1 - 5, 7 - 22, 36 - 40 and 45 - 49 is respectfully requested.


The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

Enclosed is a PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. § 1.136 for extending the time to respond up to and including today, July 21, 2003.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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